Reply Declaration of Francis J. Murphy

I. Overview

This reply declaration will respond to the arguments put forth by various parties in comments filed in response to the Second Notice of Further Proposed Rulemaking on May 26, 1999. A review of the comments of some of the parties indicates that many of the arguments put forth are based on pure theoretical supposition, as opposed to what is actually happening in the marketplace today.

The comments filed by GTE on May 26, 1999, provided overwhelming evidence that CLECs can, and in fact are, entering the marketplace and expanding their networks with little or no reliance on ILEC-provided facilities. For example, the number of CLECs deploying their own switches and fiber networks throughout the country in all markets grows daily.[1] In addition, CLECs are obtaining Operator Services and Directory Assistance (OS/DA) and signaling functionality from sources other than ILECs.[2] Similarly, CLECs are making acquisitions and forming partnerships that afford them the opportunity to reach customers over alternative loop facilities.[3] The CLECs are planning and building flexible, scalable and full featured networks using the latest technologies, vendor equipment and resources the likes of which were merely futuristic ideas during the time the ILECs were deploying their existing networks. The ability of these CLECs to secure funding from the

---

[1]GTE Comments at 6 and 61.

[2]GTE Comments at 49-56.

[3]GTE Comments, Network Engineering Consultants, Inc., *An Analysis of Alternative Network Elements Available to CLECs*, (filed as Appendix B to GTE's Comments) (referred to hereafter as NECI).

investment and vendor communities[4] coupled with the rapid revenue growth they are experiencing,[5] is evidence of the fact that these CLECs are thriving and expanding with little or no reliance on ILEC network elements. Attachment A contains a selected list of CLECs, the funding they have received from the investment and vendor communities, and the UNEs they have self-provisioned.[6]

Despite AT&T's and MCIWorldCom's assertion that margins for CLECs are slim and that any increase in cost will jeopardize their ability to compete, the CLEC industry continues to grow and flourish. New entrants utilize the latest technologies -- with features such as built-in compatibility with other network protocols, packet switching and transmission of both data and voice, use of IP and voice over IP, and scalability. In deploying these networks, CLECs are purchasing equipment from numerous vendors that target the CLEC market intensively -- often affording CLECs steep discounts and highly attractive financing. For example, in a recent news article, the following was attributed to Convergent Networks Inc., a switching and gateway systems vendor: "Convergent claims its systems cut switching costs from $250 to about $25 per DS-0 port and feature full interoperability with TDM networks."[7] These price cuts are being experienced by new entrants today for every aspect of their own networks.

Following such a strategy allows a CLEC to enter the marketplace and expand their

---

[4]NECI, Attachment F.

[5]NECI at 22, 33, 45,50.

[6]The table includes information on the switch, loop, transport, SS7 and OS/DA UNEs.

[7] www.clec.com/latest/clecswitch99/clecswitch99story3.cfm, June 2, 1999

networks with little or no reliance on ILEC-provided facilities.

II. A Switching UNE Is Not Required For CLEC Expansion

A. CLECs Are Successfully Deploying Switches In Areas Of Their Choice To Serve Both Business And Residence Customers

GTE presented compelling evidence in the comments filed on May 26, 1999, that CLECs are successfully deploying switches in the geographic areas of their choice -- including urban, suburban and rural — to serve both business and residence customers. The assertion of AT&T that CLECs cannot economically provide switching to provide "mass market service that otherwise depend on elements obtained from LECs,"[8] and a similar assertion by MCIWorldCom[9] do not stand up to the realities of what is occurring in the industry today. These parties assert that switches can and are only being deployed in urban areas. The data presented by numerous commenters proves that switches are being deployed not only in urban areas, but in suburban and rural areas as well. The table below provides a few of the many examples of CLEC switches that have been deployed to serve targeted suburban and rural markets.

---

[8]AT&T Comments at 16.

[9]MCIWorldCom Comments at 53.

Switch Location	Company	Rural/Suburban	1990 Population[10]
Oviedo, FL	Intermedia	Suburban	11,114
Delmar Iowa	Farmers and Business Mens Telephone Co.	Rural	517
Oxford Junction, IA	Lost Nation-Elwood Tel. Co.	Rural	581
Mackay, ID	Westel	Rural	574
Paducah, KY	ALEC	Suburban	27,256
Gonzales, LA	Advanced Tel	Suburban	7,003
Fergus Falls, MN	Otter Tail Telecom	Suburban	12,362
Norborne, MO	Green Hills Telecom	Rural	856
Bloomsburg, PA	Commonwealth Telecom Services	Suburban	12,439
Basin, WY	Tri Tel	Rural	1,180

There is nothing special about these markets. The examples listed in the table above therefore demonstrate that CLECs are successfully deploying switches in all types of markets across the country to serve both business and residence customers.

B. CLECs Have Advantages Over ILECs In Deploying Their Switches

In its comments, AT&T included a list detailing the total number of switches in each state, the total number of ILEC and CLEC owned switches per state, and a ratio of CLEC owned switches to total switches on a per state basis.[11] AT&T also included a map of the

---

[10]http://www.gov/population.

[11]AT&T Comments, *Affidavit of C. Michael Pfau*, (Exhibit E) (May 26, 1999) at Attachment 1 (referred to hereafter as Pfau Affidavit).

continental United States which depicted the information pictorially. Neither the list or the map shows where CLEC owned switches are located within a given state. Knowing only the total number of switches deployed by CLECs, and not the location of those switches, may lead one to conclude erroneously that the start-up investment associated with switch placement is burdensome and therefore presents a barrier to entry. This is not the case.

As a result of technological limitations in the past and the evolution of technology, ILECs found it necessary to place a switch in each rate center when building their networks. Had fiber-optics, DLC technology and the advanced switching platforms of today been available when ILECs were initially constructing their networks, the ILECs would have far fewer switches than they do today. As stated previously, CLECs are able to take advantage of these technological advances and therefore deploy far fewer switches to reach the same geographic areas and customer bases as the ILECs.

As demonstrated in the NECI analysis, CLECs can use remote switching and DLC capabilities to extend their switching functionality into all density zones without having to make a large investment in switching equipment.[12] Attachment C of the NECI analysis demonstrated that by placing switches in only seven major cities in the United States, CLECs can deploy Nortel's remote switching modules and reach the entire continental United States.[13] Indeed, even when a more conservative estimate of a 125-mile radius is assumed, virtually the entire eastern half of the United States and a significant portion of the western part of the country can be reached using CLEC switches that are currently

---

[12]NECI, Attachments C and D.

[13]NECI at 19.

deployed.[14]

As Mr. Pfau states in his affidavit, "within any given state, the CLEC/CAP switches are not evenly dispersed geographically, but rather are concentrated in urban areas with many large businesses."[15] The greater concentration of CLEC switches in urban areas is more a result of a CLEC's marketing strategy rather than the price tag associated with the placement of individual switches. CLECs can then use these urban-placed switches to extend the coverage of their network well beyond the urban area in which their switch is located. As discussed earlier, the determinant of the overall network design and placement of switches can all be uniquely established by each CLEC to reach the market share, expansion and service provisioning objectives they have set for themselves.

C. The Deployment Of Switches By CLECs Is Feasible And Not Burdensome

Mr. Pfau claims that the deployment of switches throughout a state would be burdensome for a CLEC to undertake due to the amount of necessary investment, the marketing analysis necessary to justify switch placement, and the time required for switch planning and switching installation. Similarly, MCIWorldCom argues that it would require 17 years for it to deploy 2,000 local switches, leading the reader to believe that they would only be able to reach 10% of the market (2,000 switches is about 10% of the current number of ILEC and Independent Telephone Company (ITC) switches). This estimate was predicated upon the amount of time it took MCIWorldCom to deploy the 110 local switches

---

[14]NECI at 20.

[15]Pfau Affidavit at ¶ 13.

currently in its network. [16] Inherent in this is the assumption that a CLEC would need to deploy as many switches as contained in the current ILEC and ITC networks. This is not the case. In a study prepared on behalf of MCI by Hatfield Associates, Inc., it was estimated that, based on the latest technology options, the number of switches required to serve the entire country was 4,200 (or only 22% of the current number of total switches).[17] As of March 1999, CLECs had deployed 724 switches nationwide, or more than 17% of the 4,200 switches Hatfield Associates maintains would be required to serve the entire country. It is important to note that the great majority of these switches have been deployed since the passage of the Telecommunications Act.[18]

Numerous CLECs are optimizing their switching network configurations using currently available switching technology. Rochester Tel, a Frontier subsidiary, working with Lucent Technologies was able to consolidate its base of twenty-four 5ESS switches and one 4ESS switch to only six 5ESS-2000 Switches (a 75% consolidation). The resultant flattening of the network allowed Rochester Tel. to reduce its interoffice trunking requirements by 40%.[19]

In another example, MediaOne has deployed a single Lucent 5ESS in Lowell, MA, and is providing it's Digital Telephone Services to customers in the following forty MA

---

[16]MCI Comments, *Declaration of Dennis Herold, Joseph Stockhausen and Roy Lathrop On Behalf of MCIWorldCom, Inc.*, at ¶¶ 6,7,and 8. (referred to hereafter as Herold, Stockhausen, Lathrop Declaration).

[17]*"The Cost of Basic Universal Service,"* Prepared for MCI Communications by Hatfield Associates, Inc., July 1994.

[18]UNE Fact Report at I-1.

[19]http://www.lucent.com/netsys/5ESS/, 2/97

communities: Arlington, Dracut, Nahant, Rowley, Wilmington, Andover, Hamilton, Newbury, Saugus, W. Newbury, Beverly, Ipswich, Newburyport, Stoneham, Winchester, Billerica, Lowell, N. Andover, Tewksbury, Woburn, Boxford, Marblehead, N. Reading, Topsfield, Burlington, Methuen, Reading, Waltham, Chelmsford, Middleton, Revere, Wenham, Newton, Needham, Wellesley, Watertown, Dedham, Sherborn, Wayland, and Weston. In contrast, Bell Atlantic has switches deployed in twenty-nine of these forty communities.

Similarly, RCN has deployed a Lucent 5ESS Host in South Boston, MA which it is using to provide local telephone service to customers in Arlington, Belmont, Brookline, Burlington, Lexington, Newton, Norwood, Randolph, Somerville, Wakefield, Waltham and Watertown, MA. Bell Atlantic has switches deployed in all twelve of these communities.

The examples above are not exceptions to the norm. CLECs are installing Lucent and Nortel voice switches in combination with ATM and Frame Relay data switches to serve significantly larger geographic areas than ILECs serve with their voice switches.

D. The Telecomp Model Analysis Performed By AT&T Is Flawed

In an effort to justify its erroneous assumptions regarding the infeasibility of switch deployment, AT&T put forth an analysis of the Telecomp Model (TM) developed by Strategic Policy Research, Inc. (SPR) on behalf of Bell South.[20] The analysis performed by AT&T is problematic for several reasons. First, AT&T states that the Model contains

[20]AT&T Comments, Affidavit of Michael J.Boyles, John C. Klick, Brian F. Pitkin, (Exhibit B). (referred to hereafter as Boyles, Klick, Pitkin Affidavit).

fatal flaws, yet they proceed to utilize it for their analysis.[21] Second, AT&T then makes modifications to the "flawed" Model in order to produce the conclusion that an "entrant leasing unbundled loops and deploying its own local switches would have to capture substantially higher market share in order to offset increased dedicated transport costs".[22] Specifically, AT&T concluded that the line penetration a new entrant would have to acquire (*i.e.* market share) would "vastly understate the success a competitive LEC would have to have in the Atlanta, Georgia market in order to justify entering the market using self-provided switching and unbundled loops."[23] AT&T's conclusions are inconsistent with what is actually taking place in the Atlanta market.

According to the Bellcore (now Telcordia) LERG on March 1, 1999, there are a total of 17 companies with 24 switches deployed in Atlanta, eight of which are small telecommunications providers. One of those telecommunications providers, Allegiance Telecom, Inc., describes themselves as "a competitive local exchange carrier, interexchange, and international carrier, offering service in thirteen markets in the United States, including Washington, D.C., Atlanta, Dallas, San Jose and Chicago."[24] In its comments, Allegiance does not indicate that it requires the switch UNE in order to provide service in any of the areas its serves, including Atlanta.[25] According to Allegiance

---

[21]AT&T Comments, Affidavit of John C. Klick and Brian F. Pitkin (Exhibit D) at 9. (referred to hereafter as Klick, Pitkin Affidavit).

[22]Boyles, Klick, Pitkin Affidavit at ¶5.

[23]Boyles, Klick, Pitkin Affidavit at ¶17.

[24]Comments of Allegiance Telecom Inc. Summary ¶1.

[25]*Id.* ¶3.

Telecom's Form 10Q, filed in November 1998, the Company "plans to deploy digital switching platforms with local and long distance capability."[26] Further, Allegiance Telecom's latest financial report states, "Allegiance reported first quarter revenues of $10 million, an increase of 79% over 4Q98 revenues of $5.6 Million. Lines sold as well as lines installed continued to exceed plan."[27] Clearly, this is a company that is thriving by pursuing an expansion strategy that includes placing its own switches. As demonstrated in the comments of GTE and others, the activity occurring in the marketplace does not coincide with the conclusions reached by AT&T.

E. Contrary To The Comments Of Some Parties, Collocation Is A Viable Option That Enables CLECs To Place Their Own Switches

AT&T, MCIWorlCom and Sprint have alleged that the cost and deployment of collocation arrangements are burdensome for new entrants and CLECs. This is not the case. Indeed, Covad has stated its intention to pursue a strategy of increasingly obtaining collocation arrangements in residential and rural offices to build out its network.[28] The combined costs of collocated multiplexing equipment and interoffice facilities are far less expensive than the commenters imply. The recent FCC *Advanced Services Order*[29] significantly expanded the collocation options ILECs must provide to include cageless, shared caged, and adjacent on-site and off-site; thereby affording CLECs the potential of

---

[26]Allegiance Form 10-Q, section 12.

[27]Allegiance Website, http://allegiancetele.com/body_1Qresults_APR99.html.

[28]Covad Comments, Affidavit of Mark Shipley and David Rauschenberg at ¶28. (referred to hereafter as Shipley, Rauschenberg Affidavit)

[29] *Deployment of Wireline Services Offering Advanced Telecommunications Capability*, CC Docket No. 98-147, First Report and Order and Further Notice of Proposed Rulemaking, (rel. Mar. 31, 1999), at ¶¶ 37-56.

significantly reduced collocation costs. These expanded collocation options along with efficient CLEC use of multiplexing equipment such as OC-12 (which is capable of aggregating 8,064 voice grade circuits and transporting them over two fiber conductors to the CLEC's desired location) can result in relatively minimal per customer costs, and alleviate altogether concerns regarding unavailability of space.

In the Declaration of Dennis Herold, Joseph Stockhausen and Roy Lathrop on behalf of MCIWorldCom, Inc., it is alleged that the provisioning interval of collocation requires too much of the ILEC's time, thereby causing service offering delays on the part of MCIWorldCom.[30] This claim is not supported by the facts. In Bell Atlantic's region, for example, the reciprocal is true. In a filing made with the New York Public Service Commission, Bell Atlantic provided information of 65 instances in 31 individual central offices where a CLEC delayed acceptance of completed cage projects for anywhere from 3 to 18 months.[31] Bell Atlantic described 25 of those cage construction projects simply as CLEC's "warehoused" space in Bell Atlantic-New York central offices.

F. Unbundled IDLC Options Are Available To CLECs

AT&T and MCIWorldCom claim that "new technologies such as Digital Subscriber Loop (DSL) and Integrated Digital Loop Carrier (IDLC) systems installed by ILECs make it technically infeasible for CLECs to connect directly at individual central offices to loops

---

[30] Herold, Stockhausen, Lathrop Declaration at 9.

[31] Bell Atlantic - New York's Brief Exceptions to the Phase 3 Recommended Decision on Collocation Rates, Before the State of New York Public Service Commission, Case Nos. 95-C-00657, 94-C-0095, 91-C - 1174,96-C-0036, (October 23, 1998), Attachment 1.

serving millions of local customers"[32] and that as a result "CLECS may be *entirely* precluded from competing for these customers [ILEC customers served on IDLC]."[33] These claims are in direct contradiction to documents produced by AT&T and MCIWorldCom describing numerous possible methods of gaining access to unbundled IDLC loops, and with the FCC's conclusion that it is "technically feasible to unbundle IDLC-delivered loops."[34] AT&T has produced a document entitled "IDLC Unbundling," which it submitted in cost proceedings in numerous states, the latest of which was Missouri.[35] Similarly, MCIWorldCom has recently produced a document entitled "Unbundling Digital Loop Carriers" in cost proceedings in Michigan state. [36] The express purpose of both of these documents is to: "describe several practical alternatives for unbundling local loops served by Integrated Digital Loop Carrier"[37] and "show that Integrated Digital Loop Carriers

---

[32]MCIWorldCom Comments at iv.

[33]Pfau Affidavit at ¶72.

[34]*First Report and Order*, CC Docket Nos. 96-98 and 95-185, FCC 96-325 (rel. Aug. 8, 1996) at ¶384. The FCC stated that, "[w]e find it technically feasible to unbundle IDLC-delivered loops. One way to unbundle an individual loop from an IDLC is to use a demultiplexer to separate the unbundled loop(s) prior to connecting the remaining loops to the switch. Commenters identify a number of other methods for separating out individual loops form IDLC facilities, including methods that do not require demultiplexing. Again, the costs associated with these mechanisms will be recovered from requesting carriers."

[35]AT&T Responses to GTE's Third Set of Data Requests, Missouri Docket No. TO-98-329, Request No. 102, (11/23/98) (See Fassett 63-72). (B)

[36]Michigan Bell Telephone Company, *In the matter, on the Commission's own motion, to consider the total service long run incremental costs for all access, toll and local exchange services provided by Ameritech Michigan*, Michigan Public Service Commission, Case No. U-11831, *Direct Affidavit of Michael Starkey on Behalf of MCIWorldCom*, Schedule 4, April 1, 1999. (C)

[37]AT&T Responses to GTE's Third Set of Data Requests, Missouri Docket No. TO-98-329, Request No. 102, (11/23/98) (See Fassett 63-72).

can be unbundled."[38] The IDLC unbundling alternatives described in these documents are:

- **Multiple Switch Hosting**
  This alternative utilizes the capability of GR-303 compliant IDLC Remote Terminals (RTs) to interface with multiple switches simultaneously. Using the Time Slot Interchange (TSI) *in the IDLC RT*, individual customer lines can be electronically "groomed" (or mapped) into individual DS1s or DS1 groups, called interface groups, that are routed to the CLEC switch. GR-303 compliant RTs can support all of the industry standard interface formats. According to the MCIWorldCom paper, "Multiple Switch Hosting is the recommended forward-looking network architecture for unbundling in a competitive environment."[39]

- **Integrated Network Access (INA)**
  This alternative, which was originally developed to allow non-locally switched (Foreign Exchange lines) and non-switched (private lines) to be redirected to the interoffice transmission network, also utilizes the TSI *in the IDLC RT* to electronically map individual lines to specific DS1s or DS1 groups. This methodology is different from multiple switch hosting in that the DS1 bit stream's D4 format is slightly different than the GR-303 and TR-008 formats used for DLC. This difference requires the use of an "unbundling RT" between the incoming INA DS1 and the CLEC switch. For this reason, this methodology is labeled a "second-best" solution in the MCIWorldCom paper.[40]

- **Digital Cross-Connect (DCS) Grooming**
  This alternative utilizes a DCS TSI located *in the ILEC central office* to electronically redirect individual customer lines into DS1s that route to the CLEC switch. This methodology is only suitable for use with TR-008 compliant IDLC RTs and is, according to the MCIWorldCom paper, "the most efficient method of unbundling those DLCs (such as the SLC 96) that cannot support GR-303, INA, or Multiple Switch Hosting."[41] The main draw-back to this solution is the requirement for a DCS in the ILEC central office.

---

[38]Michigan Bell Telephone Company, *In the matter, on the Commission's own motion, to consider the total service long run incremental costs for all access, toll and local exchange services provided by Ameritech Michigan*, Michigan Public Service Commission, Case No. U-11831, *Direct Affidavit of Michael Starkey on Behalf of MCIWorldCom*, Schedule 4, April 1, 1999.

[39]*Id.* at 12.

[40]*Id.* at 13.

[41]*Id.*

- **Side-Door Grooming**
  The least efficient of the methods presented here, this alternative utilizes the TSI *in the ILEC local digital switch* to electronically groom individual customer lines that terminate on the switch's IDLC interface on to another DS1 switch port for routing to the CLEC. In this configuration each connection is "nailed-up" within the local digital switch, requiring two switch ports for each connection. It is considered useful in situations where there are only a few lines that need to be unbundled.[42]

Each of the unbundling methodologies described in the AT&T and MCIWorldCom documents replaces the time consuming, per line manual cross-connect processes described by AT&T Commenter C. Michael Pfau[43] with efficient, instantaneous, electronic transfer of customers from ILEC to CLEC switches. According to the MCIWorldCom paper, these methodologies have "the added advantage of making collocation unnecessary for access to these loops" because "[t]he CLEC can purchase or provide dedicated transport from the DSX to their CO to transport their loops."[44]

Clearly, the alternatives put forth by MCIWorldCom and AT&T in the documents cited above do not support their claim that a UNE-P (including the switch) must be provided because IDLC unbundling options do not exist. In fact, Mr. Starkey's Affidavit on behalf of MCIWorldCom in Michigan concludes "Today it is technically feasible to unbundle IDLCs."[45]

---

[42] *Id.* at 14.

[43] Pfau Affidavit at ¶64.

[44] Michigan Bell Telephone Company, *In the matter, on the Commission's own motion, to consider the total service long run incremental costs for all access, toll and local exchange services provided by Ameritech Michigan*, Michigan Public Service Commission, Case No. U-11831, *Direct Affidavit of Michael Starkey on Behalf of MCIWorldCom*, Schedule 4, April 1, 1999. at p. 5. (C)

[45] *Id.* at p. 14.

G. Hot Cut Issues Raised By Parties Do Not Warrant The Need For A Switch UNE

AT&T and MCIWorldCom in their comments raise issues related to the process of hot cuts -- the migration of a customer with working service form one carrier to another -- and erroneously conclude that these issues are justification for a switch UNE.[46] This conclusion is inconsistent with what is occurring in the marketplace today. Today, CLECs are deploying new switches across the country -- for both new customers and existing customers. If hot cut completions were such a compelling issue, these CLECs would not choose to deploy so many of their own switches.

The provisioning of unbundled network elements, when initially introduced, required some time to establish a smooth-flowing provisioning process. As with any new process in any industry, those performing the process required a learning curve to perfect the process. The process of migrating a customer with working service from one carrier to another is a straightforward work activity that can be done simply and quickly today. However, it does require inter-company coordination, cooperation and adherence to procedures by the involved parties. GTE provides hot cuts on demand to CLECs, and schedules them to take place at a mutually agreeable time. GTE performs these hot cuts when scheduled unless, as is often the case, the CLEC requests a delay.

Hot cuts have been an issue in UNE non-recurring state cost proceedings over the past few years. In most of these proceedings, AT&T and MCIWorldCom have proposed a Non-Recurring Cost Model (NRCM) as an alternative for calculating non-recurring costs compared to those models that the ILECs have filed. AT&T and MCIWorldCom have

---

[46]AT&T Comments at 86-87; MCIWorldCom Comments at 52.

claimed that migrations or hot cuts are simple activities.

For example, AT&T recently recommended the use of the NRCM for calculating non-recurring costs in Michigan.[47] The NRCM element #6 filed by Mr. Riggert is titled "POTS / ISDN BRI Migration (UNE Loop)" and the costs that he filed for this element were $2.05. This element is the equivalent of a hot cut for a two-wire loop.[48] The costs include 1 minute for one ILEC technician to "install cross connect from MDF to CFA appearance" and no coordination time or costs. This is in stark contrast to Mr. Pfau's current statement that "because of the number of steps involved in a hot cut, the need for coordination among numerous ILEC and CLEC technicians, and the concomitant risks of a prolonged service outage, ILECs must establish and adhere to detailed methods and procedures (M&Ps) for performing hot cuts."[49]

As the ILECs and CLECs migrate more customers, those performing the provisioning (both ILEC and CLEC technicians) will become more proficient. AT&T acknowledged this in a recent brief in Maryland where AT&T stated: "While some CLEC orders may be complex in the short run, particularly while all parties including BA-MD are learning the ropes of UNE provisioning, in the long run a CLEC order for a UNE should be no more complex than the average BA-MD order."[50]

Allegiance Telecom, in its annual report states:

---

[47] *Affidavit of Roger Riggert on Behalf of AT&T*, Michigan Case No. U-11832, (March 31, 1999).

[48]The costs referred to in this discussion are espoused by the NRCM sponsors. Neither GTE nor NECI necessarily agree that these costs accurately represent GTE's or any other ILECs costs, however.

[49] Pfau Affidavit at ¶43.

[50] Initial Brief of AT&T Communications of Maryland, Inc. dated March 5, 1999, Maryland Case No. 8786, footnote 39.

> As Allegiance makes further progress in electronic bonding, **new customers will find that making the Company its local telecommunications provider is almost as easy and seamless as switching long distance carriers**. And Allegiance will see a dramatic increase in the efficiency and speed with which it is able to sign customers, begin service and manage operations.[51] (emphasis added)

Thus, Allegiance has demonstrated that some of the issues pertaining to hot cuts can be addressed with solutions such as electronic bonding. Clearly, Allegiance is not letting provisioning issues associated with migrating customers hinder its expansion plan. But only by working together can the industry solve any provisioning issues associated with hot cuts. This in turn will ensure that the competitive alternatives will continue to emerge and flourish in the industry. The use of a switching UNE as the solution for hot cuts will have exactly the opposite effect, and in fact disadvantage those CLECs, such as Allegiance, who are already successfully competing by self-provisioning the switch functionality.

H. There Are Efficient Back Haul Alternatives For CLECs

In its comments, MCIWorldCom presents an unrealistic picture of the back hauling costs incurred by CLECs.[52] As described previously, when a CLEC self-provisions a switch, they will choose from an extensive list of makes and models of switches, and choose the location of the switch to maximize the efficiency of their total network with minimal cost. This choice will be driven by a number of factors, including the locations of the CLEC's target markets, cable facilities, number of "on-network" switches etc. In making

---

[51] Allegiance Telecom's 1998 Annual Report (www.allegiancetele.com).

[52]MCIWorldCom Comments, *Declaration of John M. Wimmer*, at ¶15. (referred to hereafter as Wimmer Declaration.

this choice, the "back hauling costs" posited by MCIWorldCom are minimized or not incurred at all. Consider for example, AT&T's local services network was described in their latest annual report as follows: "[v]oice-grade equivalents in service were 11.6 million, an increase of 4.3 million from year-end 1997. AT&T now serves 19,246 buildings with 5,536 on net (buildings where we own the switch), in 83 metropolitan statistical areas (MSAs)." AT&T's on-net buildings and the customers served in these locations do not require any back hauling of loops.

Rochester Tel's experience in reconfiguring it's switch network (see Section II.C.) is another example of significantly offsetting an increase in loop transport costs with savings available from a major reduction in switch and interoffice investment.

In addition, as Mr. Wimmer indicates in his discussion of the costs of back hauling, "there are potentially less expensive ways to concentrate and transport traffic to [CLEC] switches."[53] By using the concentration capabilities of Next Generation Digital Loop Carrier (NGDLC) or Remote Switch Modules (RSMs) CLECs can aggregate their loop traffic on to DS-1 or OC-3 fiber facilities for delivery to their switch. Through the use of concentration, the cost per line for such facilities is minimized. The Commission reinforced their support of such cost-efficient technologies for traffic aggregation in its *Advanced Services Order*, stating the use of:

> "remote switching modules, which terminate circuits and perform multiplexing and switching functions" allows CLECs to lower costs and increase the

[53]Wimmer Declaration at ¶15.

services they can offer their customers.[54]

Mr. Pfau has indicated that "CLECs would face inherently higher costs in serving the mass market than do the ILECs."[55] This is based on the assertion that AT&T estimates of non-recurring customer migration and back haul costs that are added to recurring loop UNE costs. CLECs that self-provide their own switching and customer loops avoid the NRC and UNE costs, thereby placing them in parity with the ILECs. As discussed in Section II.C., the CLECs can significantly reduce their switching and trunking investment relative to that already incurred by the ILECs by taking advantage of the capabilities of the latest switch technologies. In fact, the economies associated with the drastic reduction in the number of switches and trunks coupled with the efficiencies inherent in the current fiber based loop technologies are likely to mean that the CLECs will enjoy a lower cost per subscriber than that associated with the ILEC's embedded networks. The examples of CLECs that are self-provisioning customer loops presented in GTE's Comments[56] are indicative of the fact that a significant number of CLECs (including AT&T) agree with this assessment.

I. It Is Not Necessary For Shared Transport To Be Designated As A UNE

AT&T has stated that CLECs cannot "take advantage of an incumbent LEC's shared

---

[54]In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-47, *First Report and Order and Further Notice of Proposed Rulemaking,* (rel. Mar. 31,1999) at ¶29.

[55]Pfau Affidavit at ¶19.

[56]NECI at 38-39.

transport element unless the CLEC can also obtain that incumbent LEC's unbundled switching element."[57] Similarly, MCIWorldCom has stated that "unless a CLEC has access to unbundled shared transport, it would have to either build or lease dedicated transport circuits to duplicate the entire ILEC local transport network."[58] These statements are erroneous because they fail to account for widely used alternatives to unbundled shared transport that provide the same functionality.

The ILEC typically places transport facilities between their end office locations and the tandem switch location. ILEC's typically deploy dedicated transport facilities between end offices only on very high usage routes where traffic volumes economically justify the need for direct transport (*e.g.,* between the wire centers that serve neighboring towns). Traffic between most end offices within a LATA boundary is generally routed through a tandem switch, where the traffic is aggregated and directed to the appropriate terminating switch. Similarly, traffic that is destined for an IXC network is typically routed on the same trunks that connect the ILECs end office to the tandem switch. Thus, the term "shared transport" is appropriately applied to those trunk groups that carry traffic between end offices and tandems, because the traffic of multiple carriers will share these transport facilities.

When a CLEC plans its network, it can and likely will, choose to employ the same type of architecture in its network as the ILEC does (*e.g.,* an end office and tandem configuration). When traffic is exchanged between a CLEC and an ILEC network (or

---

[57]AT&T Comments at 99.

[58]Comments of MCIWorldCom at ¶3.

between two CLEC networks, or between an IXC and ILEC network, or between an IXC and a CLEC network), unless there is a high-usage community of interest between a specific CLEC switch on one carrier's network and a specific switch on the other carrier's network, the most efficient point of interconnection, indeed the only interconnection point required is at the tandem. This means of interconnection between networks allows all carriers to take full advantage of an overall efficient network design and economies of scale.

Further, it logically follows that any CLEC that is self-provisioning switching does not need (and is not using) ILEC-provided shared transport in order to efficiently build its own network. Rather, these carriers are competing quite successfully using the simple interconnection alternative described above. Because NECI and others have adequately demonstrated both the viability and the reality of switch self-provisioning on the part of CLECs -- and because these CLECs are all using substitutes for unbundled transport -- CLECs have no need for a shared transport or switching UNE to compete.

III. Viable Transport Alternatives Are Available To CLECs

A. CLECs Are Taking Advantage of Transport Alternatives

Several of the parties argued in their comments that transport functionality must be made available on an unbundled basis because self-provisioning may be infeasible due to limitations on collocation space, issues in procuring access to rights-of-way and

excessive delays and costs that will be encountered in transport deployment.[59] GTE demonstrated in its comments that numerous CLECs are successfully either providing their own transport facilities or obtaining them from wholesale providers.[60] There is strong evidence that CLECs are willing and able to use alternative methods for obtaining interoffice transport. Indeed, AT&T has stated that, "[a]s needed, interexchange competitors have leased capacity from each other in the past and it is assumed they will do so in the future."[61] It logically follows that if IXC competitors can do this, so can CLECs.

MCIWorldCom acknowledges that it has the capability to provide its own transport facilities to over 400 ILEC end offices. It has also committed to using alternatives to ILECs for its transport needs wherever possible. By its own admission, MCIWorldCom can purchase transport from CLECs and CAPs to reach approximately 1,200 additional ILEC end offices.[62] In addition, MCIWorldCom has recognized that competitive carriers, including AT&T, have constructed fiber optic facilities in a number of cities, connecting a number of locations within the local exchange, either to their long distance switch, or to their local switch.[63] Sprint also agrees that transport is available from sources other than

---

[59]See for instance AT&T Comments at 111.

[60]NECI at 23-34.

[61]*An Updated Study of AT&T's Competitors' Capacity to Absorb Rapid Demand Growth*, (April 19, 1995), Section 3.1 at 13.

[62]Wimmer Declaration at 12.

[63]MCIWorldCom Comments, *Declaration of Mark T. Bryant On Behalf of MCIWorldCom Inc.*, at 7. (referred to hereafter as Bryant Declaration).

the ILECs, some of whom have been in the market for the past ten years.[64] Indeed, Sprint's Long Distance Division has several years experience using facilities provided by competitive access providers, including entrance facilities, switch and special transport and local loop facilities.[65] The FCC has recognized that CLECs are taking advantage of alternative transport facilities. In an order released in February 1999, the FCC cited numerous examples of CLECs who are opting for transport alternatives.[66] Clearly there is an abundance of information that supports the fact that CLECs can and are choosing alternative sources of transport facilities. Even the FCC has acknowledged that "there are alternative suppliers of interoffice facilities in certain areas."[67]

B. Wholesale Transport Options Are A Viable Alternative

AT&T erroneously argues that purchasing interoffice transport from third-party providers is not a viable option because third-party providers are not capable of providing complete coverage to large geographic areas.[68] As demonstrated in the comments of GTE[69] and others, this is not the case. There are wholesale providers who provide

---

[64]Sprint Comments at 31.

[65]Sprint Comments, *Declaration of Robert Runke*, at ¶2. (referred to hereafter as Runke Declaration).

[66]*In the Matter of Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996,* CC Docket No. 98-146, (rel. Feb. 2, 1999) at 19-20. For instance, the FCC states that AT&T already has built 40,000 route miles of fiber in this country; MCIWorldCom has doubled the capacity of its Internet backbone; and Sprint is greatly increasing its transport capacity.

[67]*First Report and Order*, CC Docket Nos. 96-98 and 95-185, FCC 96-325 (rel. Aug. 8, 1996) at ¶441.

[68]AT&T Comments at 122.

[69]GTE has argued that ILECs should not be required to unbundle transport to or from wire centers that serve 15,000 or more lines. (GTE Comments at 60-64)

interoffice transport for both long-haul and local applications. For example, Metromedia, who provides both long-haul and local interoffice transport, operates a staggering 380,000 mile fiber-optic network in the New York City metropolitan area and in Chicago, Philadelphia and Washington D.C.[70] Electric Lightwave operates networks in Seattle, Spokane, Portland, Sacramento, Phoenix, Salt Lake City and Boise.[71] Similarly, Metropolitan Fiber Networks and GST wholesale the excess capacity of the fiber networks they have installed.[72] These are just a handful of transport providers that provide both local and long distance interoffice transport to CLECs.

AT&T has expressed an additional unfounded concern with respect to the continuing availability of wholesale transport alternatives. AT&T, who leases some of its transport capacity from MCIWorldCom, has stated that "MCIWorldCom is likely to utilize its own capacity internally on a going-forward basis."[73] This conjecture on the part of AT&T is totally unsupported and lacking economic justification. Transport capacity can be easily modified to accommodate increased demand because of the scalability of SONET-fiber technology. Indeed, AT&T stated in its comments that, "[e]ven when fiber has been deployed, adding substantial capacity may be achieved through a simple change out of electronics in the central office."[74]

---

[70]http://www.hoovers.com/capsules154312.html.

[71]Electric Lightwave Website, http://www.eli.net/about/index/shtml.

[72]GTE Comments at 82-84.

[73] AT&T Comments, Affidavit of William S. Beans Jr, Merridith R. Harris, and M. Joseph Stith, (Exhibit A at ¶40). (referred to hereafter as Beans, Harris, Stith Affidavit.

[74]*Id.* at Footnote 3.

The scalability of the SONET-fiber technology is a result of two factors. *First,* capacity can be added incrementally to SONET systems by adding (rather than replacing) electronics. The typical, entry-level SONET system operates at the OC-3 rate of 155 Mbits per second or 84 DS1s. The 1.544 Mbit DS1 rate is generally the lowest transport speed required, because all digital switches available today interface the network at this rate. These systems can be upgraded to OC-12 (622 Mbit, 336 DS1s), OC-48 (2.4 Gbits, 1344 DS1s), and OC-192 (10 Gbits, 5376 DS1S). Most products available today allow such upgrades to be done "in-service."

Second, the number of individual wavelengths (or colors) that each fiber carries can be increased through the use of wave division multiplexing. Transmission rates of 40 Gbits per second on a single fiber are achievable today using products like CIENA's Multiwave 1600 Terminal, which allows up to 16 OC-48 channels to be carried over a single fiber. And the future brings the promise of even greater capacity. Lucent has successfully tested a 1.6 terabit (1.6 trillion bits) fiber-optic transmission system.[75] The advantage of using these state-of-the-art technologies is clear. Once the initial investment in the fiber infrastructure is made, capacity for new and growing customer demand can be added at a relatively low incremental cost.

C. Mandating A Ubiquitous UNE For Transport Would Have A Negative Impact on The Competitive Transport Industry

The present day CAP industry, which evolved as a competitive response to the ILEC Access Services offerings, is growing and reacting to the market demands of CLECs. The

---

[75]Lucent Website, http://www.bell-lbas.com/news/1999/June/7/1.html.

FCC has attempted to monitor the CAP industry by inviting the carriers they could identify to respond to the *Fiber Deployment Questionnaire*. Even with this partial industry coverage the last *Fiber Deployment Update* issued by the FCC in 1998, with end of year 1997, data contained some valuable perspectives of the competitive transport industry.

In that report the FCC noted that: "CAP systems also have grown in capacity and sophistication." "Moreover, in an effort to better serve customers who demand switched services, a number of CAPs are establishing collocation interfaces with local telephone companies," and "the amount of CAP-owned fiber has been growing rapidly."[76] The associated FCC News Release summarized that "Competitive providers of local telephone services who are included in this year's study had in place about 1.8 million fiber miles by the end of 1997."[77]

The FCC goes on to describe the industry as follows: "In a typical CAP fiber configuration serving multiple buildings, a cable several miles in length and containing from 20 to 200 fibers is deployed in an existing conduit (or, for example, in subway tunnels) in a ring configuration. The ends of the fiber cable are connected at a hub location. At least one fiber pair in the ring typically is dedicated to a single building, and capacity can be subdivided electronically in order to provide service for individual customers within the building. CAPs have employed both shared and dedicated fiber configurations. Fiber rings provide effective redundancy because traffic can reach the hub by traveling in either

---

[76]*Fiber Deployment Update End of Year 1997,* By Jonathan M. Kraushaar, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, at 34.

[77]*Id.*

direction around the loop."[78]

The CAP industry stands ready to use their experience and networks to meet the needs of the CLEC industry. The CAP industry is highly competitive and exists as the result of changes in telecommunications law and regulatory decisions that created new market needs. If a transport UNE at TELRIC prices is ordered, not only will CAPs suffer a service diminution in their incentive to continue expanding their networks, but some of the services they have provided to meet the needs of IXCs and others may well be displaced, thereby stifling the very competition the Act and the FCC are trying to encourage.

D. Special Access Is A Viable Substitute For Unbundled ILEC Transport

AT&T and Covad argue that ILEC access tariffs are not a competitively viable substitute for unbundled dedicated transport.[79] As support for their positions they provide "sample" price comparisons reflecting disparities of varying degrees between special access and transport UNEs. These comparisons are misleading and fail to reflect the special access prices actually paid by CLECs as a result of the mutual exchange of traffic and/or volume discounts.

When CLECs interconnect with ILECs, CLECs generally share in the cost of interconnection facilities that are provisioned for the mutual exchange of traffic. For instance, for the mutual exchange of traffic, GTE reduces the charge for special access facilities ordered by the CLEC in a number of ways, (*e.g.*, 50%/50% proportionate share

---

[78] *Id.*

[79]Beans, Harris, Stith Affidavit at 22-23 and Shipley, Rauschenberg Affidavit at 8-9..

or other means), and a discount is applied to their CABS facility bill. Although this should not be considered a term or volume discount plan per se, it is a clear alternative that will continue to be available to CLECs, regardless of whether there is a mandated UNE for transport.

In addition to regular charge reductions, many CLECs also qualify for real term/volume discounts based on the volume of services committed (state or national) and the length of their commitment to the ILEC. Additionally, larger CLECs such as AT&T also qualify for implicit volume discounts from GTE due to their ability to support higher bandwidth services (DS3 and SONET). For example, the per unit DS1 price of SONET services can be significantly lower than the DS1 tariff rate. At the same time, GTE allows carriers to purchase large bandwidth pipes (OC-48 SONET service) and manage the assignment of multiple services (switched access, special access, interconnection trunks, UNEs) that will ride the SONET network to their POP.

E. Transport Structure Costs And Rights-Of-Way Fees Are Not Prohibitive

AT&T also claims that "the cost of placing new conduit and fiber, which is the dominant mode of placement in densely populated areas, can easily exceed $200,000 to $300,000 per mile."[80] Likewise, AT&T asserts that a CLEC would spend $75,000 to $100,000 per mile for direct buried and approximately $37,000 per mile for pulling inner duct and fiber through existing conduit.[81] These cost estimates are in direct conflict with

---

[80] *Id.* at ¶ 37.

[81] *Id.*

the cost estimates that are contained in the AT&T sponsored HAI model (HAI 5.0a).[82] When using the AT&T supported default inputs and calculations that are contained in HAI 5.0a, the total interoffice fiber transport investment per mile is only $30,000.[83]

Similarly, parties in this proceeding claim that the costs for negotiating right-of-way agreements are exorbitant, and because the ILECs have historical access to rights-of-way, they may not be available to other competitors under favorable terms.[84] This is not the case. In response to a data request which asked if AT&T purchases or leases any private property rights of way facilities in the state of Missouri, AT&T provided the following response: "AT&T purchases and leases private property extensively in the long distance network throughout the United States as well as in Missouri."[85] In addition, when AT&T was asked to provide right of way cost information that is contained in HAI 5.0a, AT&T provided the following responses:

> "Right of Way costs are associated with the placing of structure, *i.e., poles, trenches, conduit, manholes, and apparatus*. The HAI Model assumes that structure will be placed in and along existing road rights of way by permission of the local governing body. Time spent associated with permits, permissions, etc are part of the hourly cost for an engineer as well as the overhead associated with this and are

---

[82]The costs referred to in this discussion are espoused by HAI sponsors. Neither GTE nor NECI necessarily agree that these costs accurately represent GTE's or any other ILEC's costs.

[83]This estimate was developed based on the default inputs contained in the HAI Model. The costs produced by the Model used to develop the estimate were fiber cable, aerial structure (poles), underground structure (conduit placement), pullbox investment, buried placement, and conduit.

[84]Beans, Harris, Stith Affidavit at ¶33.

[85]See *AT&T's Responses to GTE's Third Set of Data requests, Missouri Docket no. TO-98-329, Request no. 132,* dated 11/23/98.